

ABSTRACT

A medical device for use within a body lumen that is made from a binary nickel-titanium alloy that remains in its austenitic phase throughout its operational range is disclosed. The medical device, such as an intraluminal stent, is made from superelastic nickel-titanium and may optionally be alloyed with a ternary element. By 5 adding the ternary element and/or through heat treatment, it is possible to lower the phase transformation temperature between the austenitic phase and the martensitic phase of the nickel-titanium alloy. By lowering the phase transformation temperature, the martensite deformation temperature is likewise depressed. It is possible then to depress the martensite deformation temperature below body temperature such that 10 when the device is used in a body lumen for medical treatment, the nickel-titanium device remains completely in the austenitic phase without appearance of stress-induced martensite even if the device is placed under stress.